

JUKOLUX

smarter light. better performance.

Operating Instructions

High Bay EX LED Luminaire
Series: JUKO HX



1 General Information

1.1 Manufacturer

Jukolux Oy
Yrittäjänkatu 15
65380 VAASA
FINLAND

EFC Finland Oy
Ahmantie 6
65520 Helsingby
FINLAND

Phone: +358 401393289
Internet: www.jukolux.com
Email: info@jukolux.fi

Phone: +358 (0)6 322 6222
Internet: www.efc.fi
Email: info@efc.fi

Quality Assurance Notification No.

19 ATEX Q 003
IECEx QAR 19.002

1.2 Information regarding the operating instructions

The original instructions are the English edition.
They are legally binding in all legal affairs.





1.3 Conformity with standards and regulations

Certificates and EU Declaration of Conformity are available at www.jukolux.com. The device has IECEx approval which can be viewed at <http://iecex.iec.ch/>. Further information about certificates can be viewed from the following link: www.jukolux.com/certificates.

Document number OI-019001-1		
Revision	Date	Changes
a)	28.6.2019	Updated cable gland information

2 Explanation of the symbols

2.1 Symbols used in these operating instructions


Symbol	Meaning
	Tips and recommendation on the use of the device
	General Danger
	Danger due to explosive atmosphere
	Danger due to energized parts

2.2 Warning notes


Warnings must be observed under all circumstances, to minimize the risk due to construction and operation. The warning notes have the following structure:

- Signaling word: DANGER, WARNING, CAUTION, NOTICE
- Type and source of danger/damage
- Consequences of danger
- Taking countermeasures to avoid the danger or damage


2.2.1 DANGER

	DANGER
	Danger to persons. Non-compliance with the instruction results in severe or fatal injuries to persons.

2.2.2 WARNING

	WARNING
	Danger to persons. Non-compliance with the instruction can result in severe or fatal injuries to persons.



2.2.3 CAUTION

	CAUTION
	<p>Danger to persons. Non-compliance with the instruction can result in light injuries to persons.</p>

2.2.4 NOTICE

NOTICE
<p>Avoiding material damage. Non-compliance with the instruction can result in material damage to the device and / or its environment.</p>

2.3 Symbols on the device

Symbol	Meaning
	CE marking according to the currently applicable directive.
	According to marking, device approved for hazardous areas.

3 Safety notes

3.1 Operating instructions storage

- Read the operating instructions carefully
- Store the operating instructions at the mounting location of the device
- Observe applicable documents and operating instructions of the devices to be connected

3.2 Safe use

- Read and observe the safety notes in these operating instructions!
- Observe characteristic values and rated operating conditions on the rating and data plates
- Observe additional information plates on the device
- Use the device in accordance with its intended and approved purpose only
- We cannot be held liable for damage caused by incorrect or unauthorized use or by non-compliance with these operating instructions
- Before installation and commissioning, make sure that the device is not damaged


- Work on the device (installation, maintenance, overhaul, repair) may only be carried out by appropriately authorized and trained personnel

3.3 Intended Use


The LED floodlight JUKO HX is equipment

- For stationary mounting
- For use in Zones 1, 21, 2, 22 and in the safe area
- Can be used indoors and outdoors
- For lighting areas, work spaces and objects

3.4 Modifications and alterations

	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to modifications and alterations to the device! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • DO NOT MODIFY OR ALTER THE DEVICE
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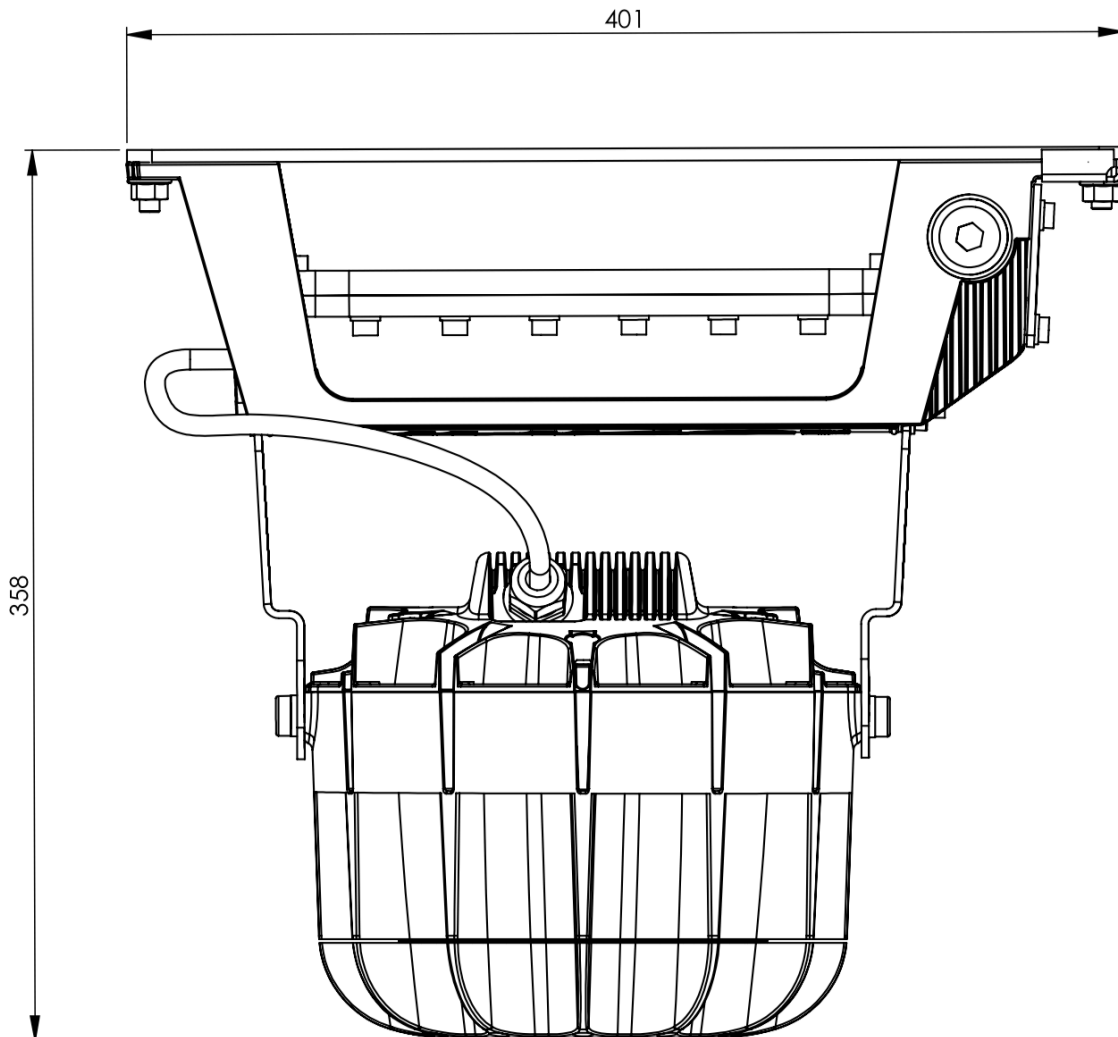
4 Function and device design

	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to improper use! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Use the device only in accordance with the operating conditions described in these operating instructions • Use the device only for the intended purpose specified in these operating instructions
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4.1 Function

For lighting areas, work spaces and objects.

4.2 Device design



5 Technical data

Explosion protection

Global (IECEX)	
Gas and dust	IECEX FTZU 18.0014X
	Ex eb db op is IIC T5 Gb
	Ex tb op is IIIC T95°C Db
EUROPE (ATEX)	
Gas and dust	FTZU 17 ATEX 0121X
	⊕ II 2G Ex eb db op is IIC T5 Gb
	⊕ II 2D Ex tb op is IIIC T95°C Db

	TYPE	Reflector / Beam width
	HX-06100-24 / HX-08500-24 / HX-11000-24	24°
	HX-06100-40 / HX-08500-40 / HX-11000-40	40°
	HX-06100-55 / HX-08500-55 / HX-11000-55	55°

	TYPE	POWER	Ambient Temperature	Temperature class	Max. surface temperature
	HX-06100-24/40/55	50W	-40°C ... +40°C	T5	95°C
	HX-08500-24/40/55	70W	-40°C ... +40°C	T5	95°C
	HX-11000-24/40/55	90W	-40°C ... +40°C	T5	95°C

Certifications and certificates

Certificates: IECEx, ATEX

Technical data

Electrical data

Electronic ballast	
Rated Voltage	100 ... 240 VAC, 50-60 Hz
Rated Current	HX-06100-24/40/55: 1000 mA
	HX-08500-24/40/55: 1300 mA
	HX-11000-24/40/55: 1600 mA
	Max current output 1700 mA
Inrush Current	HX-06100-24/40/55 HX-08500-24/40/55 HX-11000-24/40/55
I _{peak}	Max. 1.3A ² s (50W/70W/90W)

Max. fittings per Circuit Breaker			
	HX-06100- 24/40/55	HX-08500- 24/40/55	HX-11000-24/40/55
Type B 10 A	10	9	8
Type B 16 A	14	13	12
Type C 10 A	12	11	10
Type C 16 A	16	15	14
Power factor	> 0.9		
THD	≤ 10 %		

Luminous characteristics

	HX-06100-24/40-55	HX-08500-24/40/55	HX-11000-24/40/55
Power consumption (W)	50	70	90
Colour rendering (CRI)	≥ 80	≥ 80	≥ 80
Colour temperature (K)	4000	4000	4000
Wide Beam			
Luminous flux (lm)	6254	8643	11232
Luminaire efficacy (lm/w)	125	124	124
Medium Beam			
Luminous flux (lm)	6190	8593	11014
Luminaire efficacy (lm/W)	124	123	122
Narrow Beam			
Luminous flux (lm)	6099	8501	10988
Luminaire efficacy (lm/W)	122	122	122

Values apply to $T_a = +25^{\circ}\text{C}$.

Luminous flux decrease at $T_a = +40^{\circ}\text{C}$ for all versions

- ≥ 90 % of the nominal value.

Ambient conditions

Operating temperature range	-40°C ... +40°C
Storage temperature	-40°C ... +75°C

Service Life		$T_a \leq +25^{\circ}\text{C}$	$+25^{\circ}\text{C} < T_a \leq +40^{\circ}\text{C}$
	L70B10C10	100000h	77000h

$L_x B_y C_z$

At the end of the service life:

- Luminous flux decreases by “x” percent
- Up to “y” percent of all luminaires fall below “x”
- Up to “z” percent of all luminaires break down completely

Mechanical data

Degree of protection	IP66 (IEC 60529)
Protection class	I (with internal PE connection)
IK class	IK10 (IEC 62262)
Material	
Enclosure	AlSi10 aluminum enclosure, sea water resistant coating applied
Coating	DELTA-PROTEKT KL 100 Zinc Flake Coating; Anti-Corrosion
Seal	EPDM o-rings, Silicone seal on glass
Lamp cover	Borosilicate tempered glass disc



Mounting / Installation

Cable entry	Cable gland (M25)
	Stopping plug (M25)
Connection	
Standard	3-pole (2xL1, 2xN, 2xPE)
	Spring clamp terminals
	1.5 ... 4 mm ² solid/stranded
	Stripping length: 10 ... 11 mm

6 Transport and storage

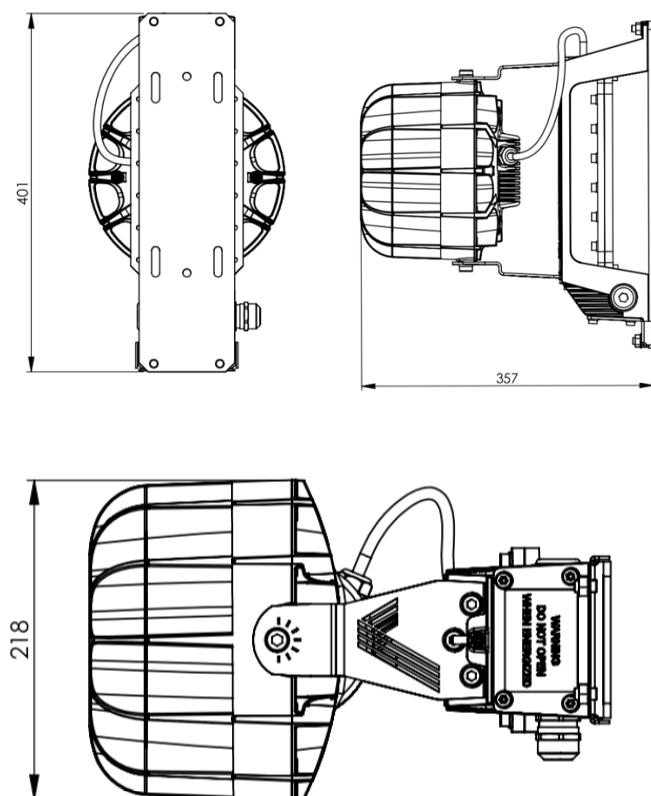
- Transport and store the device only in the original packaging
- Store the device in a dry place (no condensation) and vibration-free
- Do not drop the device

7 Mounting and installation


	<div data-bbox="359 318 1444 362">DANGER</div> <p data-bbox="373 367 1377 439">Explosion hazard due to incorrect installation of the device! Non-compliance results in severe or fatal injuries.</p> <ul data-bbox="422 448 1420 795" style="list-style-type: none"><li data-bbox="422 448 1420 560">• Carry out installation strictly according to the instructions and national safety and accident prevention regulations to maintain the explosion protection.<li data-bbox="422 568 1420 716">• Select and install the electrical device so that explosion protection is not affected due to external influences, i.e. pressure conditions, chemical, mechanical, thermal and electric impact such as vibration, humidity and corrosion (see IEC/EN 60079-14).<li data-bbox="422 725 1420 795">• The device must only be installed by trained qualified personnel who is familiar with the relevant standards.
	<div data-bbox="359 835 1444 880">DANGER</div> <p data-bbox="373 884 1257 956">Equipment must be installed to avoid a risk from propagating brush discharges for application in explosive dust atmosphere.</p>

7.1 Dimensions / fastening dimensions

Dimensional drawings (All dimensions in mm) – Subject to Alterations




7.2 Mounting / dismounting, operating position

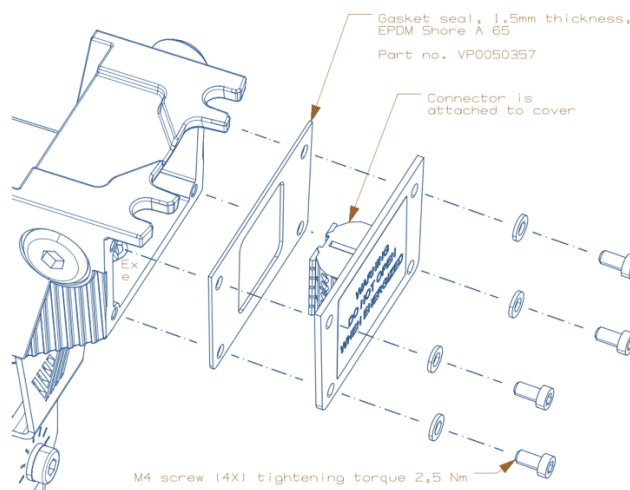
	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to inadmissible heating! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Avoid external heat sources and/or direct sunlight (risk of change of temperature class or change of maximum permissible surface temperature). • Do not exceed the maximum ambient temperature due to external heat sources (premature failure of equipment).
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- Suitable for use indoors and outdoors
- Designed for wall, ceiling, pole mounting with bracket
- Torque value between bracket and floodlight 10 Nm


7.3 Installation

7.3.1 Opening and closing of the enclosure

	<p style="text-align: center;">DANGER</p> <p>Only enclosure allowed to be opened is shown below. <u>No other enclosures are allowed to be opened.</u></p> <ul style="list-style-type: none"> • Accidents or fatal injury are almost certain to happen
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	<p style="text-align: center;">DANGER</p> <p>DO NOT OPEN ANY ENCLOSURES WHEN ENERGIZED! Accidents or fatal injury are almost certain to happen!</p> <ul style="list-style-type: none"> • Only open the enclosure in switched-off state.
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	<p style="text-align: center;">DANGER</p> <p>Risk of electric shock due to improper opening! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Open only in switched-off state.
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7.3.2 Cable entries

	<p style="text-align: center;">DANGER</p> <p>All special conditions of use for certified cable glands must be fulfilled.</p>
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Luminaires that are provided with cable entries and stopping plugs supplied by Jukolux Oy must be tightened using the following values:

		Tightening torque
Cable Entry	M25 x 1.5	5.0Nm
Stopping plug	M25 x 1.5	1.5Nm

Luminaires with approved cable entries and stopping plugs not supplied by Jukolux Oy:

	<p style="text-align: center;">DANGER</p> <p>Explosion hazard due to impermissible cable entries and stopping plugs! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Only use separately certified cable entries and stopping plugs.
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Please observe the following:

- The required dust resistance!
- The required type of protection!
- The required temperature resistance!
- The IP degree of protection according to the rating plate!
- The operating instructions of the cable entries and stopping plugs!
- The required tightening torques!
- The range of the permissible cable diameter!

7.3.3 Electrical connections

Electrical connection

Observe the maximum clamping possibility of the connecting terminals (see technical data chapter)

Note:

- Clamping must be carried out precisely

- Do not clamp any part of the conductor insulation
- Do not interchange the conductors
- Observe the technical regulations when connecting the conductor
- Clamp the conductor firmly

Connection terminals

Standard:

Push-in Cage Clamp

Clamping range:

1.5mm²...4mm² solid and finely stranded (2 free clamping units per pole available)

Stripping length:


10 ... 11 mm

L1, L2 = phase

N = neutral conductor

PE = protective conductor

8 Commissioning


	DANGER
	<p>Explosion hazard due to incorrect installation! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> • Check the device for proper installation before commissioning. • Comply with national regulations.


Before commissioning, ensure the following:

- Check the mounting and installation
- Inspect enclosure for damage
- If necessary, remove foreign bodies
- If necessary, clean the connection chamber
- Check if the conductors have been inserted correctly
- Check if all screws and nuts have been tightened firmly
- Check whether all the cable entries and stopping plugs have been tightened firmly
- Check if all conductors have been clamped firmly
- Check if the line voltage and the rated operational voltage are consistent
- Check if the permissible conductor diameter for the corresponding cable entries have been used
- Check if the device is closed according to regulations
- Check whether the bracket mounting & cover mounting screws are tightened with proper torque


NOTICE	
<p>Malfunction or device damage caused by condensation. Non-compliance can result in material damage!</p> <ul style="list-style-type: none"> • Operate the luminaire continuously or periodically over extended periods of time • Avoid thermal bridges 	

9 Maintenance and repair


WARNING	
	<p>Risk of electric shock or malfunctioning of the device due to unauthorized work! Non-compliance can result in severe injuries and material damage.</p> <ul style="list-style-type: none"> • Work performed on the device must only be carried out by appropriately authorized and qualified electricians. • To be carried out as per EN60079-17 and as per EN60079-19.

DANGER	
	<p>Explosion hazard due to hot built-in components! Accidents or fatal injury are almost certain to happen!</p> <ul style="list-style-type: none"> • Only open the enclosure in switched-off state.

9.1 Maintenance and repair

DANGER	
	<p>Explosion hazard due to hot built-in components! Accidents or fatal injury are almost certain to happen!</p> <ul style="list-style-type: none"> • Only open the enclosure in switched-off state.

NOTICE	
<p>Moisture inside the connection chamber can result in damage to electric and electronic components.</p> <ul style="list-style-type: none"> • Remove moisture with a cloth • Determine the source and eliminate the cause! • Avoid condensation and thermal bridges! 	

	Observe the relevant national regulation in the country of use!

Determine the type and extent of inspections in compliance with the relevant national regulations. Adapt inspection intervals to the operating conditions.


The following tests and measures must be carried out during regular maintenance.

CHECK	MEASURES
The permissible ambient temperature	If exceeding the permissible ambient temperature or falling below, the device must be taken out of operation
The enclosure components for formation of cracks and damage	The device must be taken out of operation
Its intended use	If the device is not used according to its intended use, it must be taken out of operation
If the conductors are clamped properly	Clamp loose conductors tightly
The cables for ageing and damage	Replace damaged or aged cables
The seals for ageing and damage	If seals are damaged, the device must be taken out of operation
The outside of the luminaire for pollution	Clean the luminaire

9.1.1 Cleaning

Clean the device only with a cloth, brush, vacuum cleaner or similar items. When cleaning with a damp cloth, use water or mild, non-abrasive, non-scratching cleaning agents. Do not use aggressive detergents or solvents.

9.2 Repair

	DANGER
	<p>Explosion hazard due to improper repair! Non-compliance results in severe or fatal injuries.</p> <ul style="list-style-type: none"> REPAIR WORK ON THE DEVICES MUST BE PERFORMED ONLY BY JUKOLUX OY

9.3 Returning of the device

Use the service form that can be found in “www.jukolux.com > contact” if repair or service is required. Optionally scan the QR-code of the device in need of service or repair and send out a service request. Optionally contact directly Jukolux Oy’s customer service. Contact information can be found in “www.jukolux.com > contact”.

10 Disposal

Observe national and local regulations and statutory regulation regarding disposal. Separate materials when sending it for recycling. Ensure environmentally friendly disposal of all components according to the statutory regulations.

11 Accessories and spare parts

NOTICE

Malfunction or device damage to the device due to the use of non-original components. Non-compliance can result in material damage.

- Use only original accessories and spare parts from Jukolux Oy.

See more details regarding accessories and spare parts from “www.jukolux.com”.

EU Declaration of Conformity

For luminaries

JUKO HX High Bay EX LED

with marking



2G Ex db eb op is IIC T5 Gb
2D Ex tb op is IIIC T95°C Db

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

- The ATEX Directive 2014/34/EU

also, the mentioned luminaries have been designed and manufactured in accordance with the following directives:

- 2014/35/EU – Low Voltage Directive
- 2014/30/EU – EMC Directive
- 2011/65/EU – ROHS Directive
- 2012/19/EU – WEEE Directive

Compliance with the Essential Health and Safety Requirements has been assessed by reference to the following standards:

- EN/IEC 60079-0:2012+A11:2013
- EN/IEC 60079-1:2014
- EN/IEC 60079-7:2015
- EN/IEC 60079-28:2015
- EN/IEC 60079-31:2014

The equipment has been tested and certified by:

1026 - Physical-Technical Testing Institute, Pikartska 7, 716 07 Ostrava-Radvanice, Czech Republic

The product has the following certificates:

- FTZU 17 ATEX 0121X
- IECEX FTZU 18.0009X

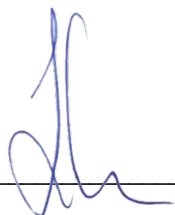
Jukolux Oy has a valid production quality system with the following certificate:

- 19 ATEX Q 003
- IECEX QAR 19.0002

This EU declaration of Conformity is not valid if the product is altered or rebuilt without the manufacturer's permission. Product must be used in accordance with local legislation and in accordance with manufacturer's recommendations.

Vaasa, 28.06.2019

Signature:



Ismo Aukee
CEO